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ABSTRACT

This project investigated the probabilistic interactional structure of counseling interviews conducted by two groups of counselors of differing levels of cognitive complexity, and the consistency of that structure within each group across sequences of two interviews. Analysis of the counselor-client interaction patterns between the two groups of counselors and across the two-interview sequences was done using tests of homogeneity on the sequential verbal response-response transitions of the counseling interviews. The results provide evidence of interactional process differences between counselors of differing levels of cognitive complexity and consistency of interactional response patterns across counseling interviews. (Author)

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Within an interactionist perspective (Ekhammar, 1976; Hertel, 1972) the process of counseling may be understood as the sequential, reciprocal responses (verbal and/or non-verbal) of the counselor and client during the course of their encounter with one another. Traditional models and strategies employed for the analysis of the counseling process (e.g. pre-posttesting, content analysis, contingency counting) have had as their focus the individual responses or acts of the counselor and client. In contrast to these traditional approaches, the model assumed in this study for the analysis of counseling interview process (a finite first-order Markov chain) focuses attention on the transitions between counselor-client responses (Lichtenberg & Hummel, 1976). The advantage of using transitions in process research instead of arbitrarily isolated individual acts is that it allows investigation of the temporal nature of the counselor-client interaction through analysis of the sequential ordering of its events (Raush, 1965). Without analysis of the sequential ordering (temporal unfolding) of the interaction process events, the concept of "process" as defined by the traditional models for counseling research seems rendered little more than a metaphor.

A basic premise of the Markov chain model as a stochastic process model is that it assumes the relationship between events (in this case counselor and client responses), and the overall sequence of events of which they are a part, to be probabilistic (albeit "rule-governed"), rather than causally determined. The model does assume, however, that both the counselor and client mutually contrain or influence the responding of the other; but

to the extent that this interactional influence is not entirely predictable, the influence may be considered probabilistic.

Within this probabilistic model for explicating interaction patterns, two fundamental questions arise: (1) How stable are interaction patterns across different counseling interviews? and (2) Are certain counselor individual difference factors related to the generation of different interview patterns? The issue of interaction pattern consistency is intriguing to investigate since there are numerous writers and theories that have purported counseling process to consist of a series of stages -- each evidencing its own recognizable pattern or type of counselor-client responding, and that an effective counselor is one who uses different strategies of intervention at different points in the counseling process (e.g., Brammer, 1973; Carkhuff, 1969; Cashdan, 1973). Accordingly, this view at least implicitly postulates that a certain degree of interaction pattern inconsistency would be expected and in fact a desirable research finding.

The second question concerning the generation of different interview patterns on the basis of counselor individual difference factors seems an important issue from a cognitive information processing viewpoint. Various cognitive theorists have claimed that a person ought not (indeed, cannot) be viewed simply as a passive element between stimulus and response, but rather must be viewed as an active agent that receives and modifies informational input. To the degree that a counseling interview can be construed as an exchange of information (verbal and non-verbal), and since individuals have been shown to vary in the way they process information (Schroder, Driver & Streufert, 1967), it would be reasonable to expect that different counselor styles of information processing should lead to different interaction response patterns.

Of particular relevance to the concept of individual information processing differences is the construct of cognitive complexity -- specifically as it relates to the cognitive processing of interpersonal stimuli (information). Although various authors differ somewhat in their respective meanings of the construct, cognitive complexity is generally understood to refer to the number and organization of dimensions (i.e. possible meanings) employed by a person in the discrimination and evaluation of interpersonal stimuli (Vannoy, 1965).

Research suggests that, at least with regard to the cognitive structuring of interpersonal stimuli, the construct of cognitive complexity is not a unitary trait, but rather a multifaceted construct reflecting several different types of cognitive processing (Heck, Lichtenberg & Blaas, Note 1; Vannoy, 1965). Assuming cognitive complexity to be a heterogeneous construct, it is possible to cluster individuals (specifically counselor trainees) with respect to their respective similarities across types of cognitive complexity, thus forming relatively homogeneous groups of individuals with respect to their particular style of cognitive information processing. To the extent that these homogeneous groups differ among themselves with respect to their style of processing interpersonal information, it is hypothesized that different counselor-client interaction response patterns and processes would be generated.

It was the specific focus of this study to investigate the differential counseling interaction patterns generated by counselors of differing levels of cognitive complexity -- more specifically, (1) to compare the probabilistic structure of counseling interview behavior between two clusters of counselor trainees differing in level of cognitive complexity and (2) to examine the degree of consistency/variability of the probabilistic

structure of interview interactive behavior between different counseling interviews. A secondary objective of this study was to demonstrate the application and usefulness of a research methodology that accounts for the sequential, reciprocal counselor-client interview behaviors which constitute the counseling process.

METHOD

Subjects

Subjects for this study were drawn from a pool of thirty master's level counselor trainees enrolled in their second semester of a two semester counseling skills laboratory at the University of Kansas. From the pool, sixteen subjects were selected; the specific manner of subject selection is discussed in the Procedure section of this paper.

Instruments

Five measures of cognitive complexity were used in this study -- these five instruments selected on the basis of the following criteria: (1) each measure represented the highest loading on separate factors extracted in Vannoy's (1965) factor analytic study of cognitive complexity; (2) on a face validity basis, each instrument represented a means of assessing cognitive complexity in the social/interpersonal domain. The five measures were:

1. Intolerance of Ambiguity Scale (AI). The scale was developed by Budner (1962) and consists of eight positively and eight negatively stated Likert-type items and has a negative loading (-.68) on Vannoy's Factor I. The scale is designed to measure a person's tendency to interpret ambiguous situations as sources of threat.
2. Interconcept Distance (ID). This instrument was devised

by Ware (1958) with scoring procedures subsequently modified by Vannoy (1965) and Blaas (1975). The scale consists of twenty person concepts (e.g. brother, teacher who most influenced me, etc.) which are evaluated by fourteen seven-point semantic differential dimensions applicable to person-objects. Scores for each of the twenty person-objects become points in multidimensional space with the mean distances between points being the measure of discrimination complexity for that subject. The lower the mean distance, the fewer the discriminations made between person-objects, hence, the lower the complexity score. The instrument has a positive loading (.70) on Vannoy's Factor II.

3. Intolerance of Trait Inconsistency (ITI). This test was developed by Steiner (1954) and revised by Steiner and Johnson (1963). It consists of 15 items with each item consisting of two pairs of traits. One pair of traits has been judged to be equally good, while the other has been judged to be unequally good. Subjects are asked to choose which of the two pairs of traits are more likely to occur together in people, and scores reflect the number of times the more equally good pairs of traits are chosen. A high intolerance of trait inconsistency reflects a cognitive style that groups people into either thoroughly good or thoroughly bad categories. The instrument has a positive loading (.56) on Vannoy's Factor IV.

4. Category Width (CW). This is a ten item scale, modified by Vannoy (1965), that is experimentally based on Pettigrew's (1958) original scale. The scale is designed to obtain an estimation of whether a person uses broad or narrow categories

in processing interpersonal stimuli. Broad categorizers use only a few categories to characterize diverse personalities while narrow categorizers use many categories for such categorization. The test has a positive loading (.48) on Vannoy's Factor VII.

5. Sentence Completion Test of Integrative Complexity (SCT). The test was derived from conceptual systems theory (Harvey, Hunt & Schroder, 1961) and was designed to measure a subject's degree of integrative complexity (Schroder, Driver & Streufert, 1967). Integrative complexity is distinguished from dimensional complexity in that a cognitive structure could be highly differentiated and yet not well integrated. This distinction seems substantiated as the SCT is represented by itself on Vannoy's Factor VIII (.48). The test consists of five incomplete sentences, the responses to which are timed and scored by two independent judges according to a manual developed by Hunt, Kingsley, Marsari, Shore & Sweet (Note 2). The interrater reliability obtained in this present study was $r = .72$.

Interaction Process Categories

Five mutually exclusive and exhaustive modes of responding were used in this study to classify the verbal responses of counselor and client. Response units were defined as everything spoken by any one of the two speakers until such time as there occurred a change in speaker or response category. The response categories were a modification of the four process categories proposed by Lennard and Bernstein (1960) for the analysis of

psychotherapeutic interaction. The five categories used were:

1. Descriptive: responses which conveyed or asked for factual information, or which gave or asked for orientation, repetition or clarification,
2. Analytic: responses which asked for or conveyed interpretation, analysis, opinion or feeling,
3. Prescriptive: responses which expressed or asked for direction or suggestion regarding what should or must be done,
4. Valuative: responses which sanctioned, valued, or expressed judgment regarding some content,
5. Non-moral preference: responses which expressed or asked for personal (non-moral) value or preference regarding some content.

These five response categories when crossed with speaker (counselor and client) resulted in ten mutually exclusive and exhaustive interaction process categories.

Procedure

All thirty students (counselor trainees) in the subject pool for the study were administered the five cognitive complexity measures during the first week of their second semester of the counseling skills lab. Scores on these five measures were then subjected to a cluster analysis of cases (BMDP2M) for the purpose of classifying individuals into relatively homogeneous subgroups with respect to their cognitive style of processing interpersonal stimuli. Two such clusters were identified, accounting for the majority of subjects in the subject pool. Individuals not initially included in either cluster were assigned to one or the other using

discriminative analysis procedures (BMD7M). From each of the two final clusters, eight subjects were randomly selected for subsequent analysis.

During the course of his/her first three weeks of enrollment in the second semester of the counseling lab, each subject conducted and tape recorded a series of two counseling interviews with each of three different clients. The verbal responses of counselor and client during these interviews were classified according to their interaction process category by two independent judges, previously trained to a level of interrater agreement of kappa = .90 on interviews similar to the actual interviews used in this study (Cohen, 1960; Tinsley & Weiss, 1975).

Data Analysis

The sequence of categories assigned to the verbal interaction of counselor and client constituted the raw material of the counseling process; the "process" itself, however, was understood not as simply the sequences of responses, but rather in terms of the transformations or changes in the response/process categories across time. That is to say, the unit of analysis for this study was the transitions between categories of responses, rather than the responses themselves -- upon the process, rather than the units of the process. (Note: A "transition" was specified by any two consecutive response categories and an indication of the direction of the response-response change. The first response of a transition was called its antecedent; the second response was its consequent.)

For the sequences of response transitions generated by each of six counselor cluster (C_1 or C_2) by interview (I_1 or I_2) groupings (C_1I_1, C_1I_2, $C_{1,2}$, C_1I_1, C_2I_2, $C_2I_{1,2}$), transition probabilities (p_{ij}) -- those probabilities of transition among the various process response categories -- were estimated by dividing the number of occurances of a particular

response-response (i,j) transition in the sequence of responses by the number of times its antecedent (i) occurred as the antecedent for any transition in the response sequence. For each cluster by interview grouping, the transition probabilities were organized into a 10 x 10 transition matrix whose rows and columns referred to the counselor and client interaction process categories (rows=antecedents, columns-consequents) and whose cell entries referred to the corresponding probability estimates of the transition from row category (antecedent) to column category (consequent).

As each matrix summarized the essential structure of the counselor-client interaction process in terms of its response-response transition probabilities (Lichtenberg, 1976), interaction process comparisons across counselor clusters and interviews were conducted by comparing matrices. For purposes of this study, five interaction processes were contrasted: C_1I_1 vs C_1I_2 and C_2I_1 vs C_2I_2 to test interactional process structure stability; C_1I_1 vs C_2I_1, C_1I_2 vs C_2I_2 and $C_1I_{1,2}$ vs $C_2I_{1,2}$ to test the effects of counselor cognitive complexity differences on interactional process structure.

Matrix comparisons were conducted using appropriate X^2 tests of homogeneity (Suppes & Atkinson, 1960). For each matrix comparison, corresponding row by row comparisons were conducted using a X^2 test of homegeneity; these X^2 values were then summed across the ten rows to compare entire matrices for similarities and differences.

RESULTS

Table 1 summarizes the results of each of the five cognitive complexity measures for the final two clusters of counselors. The values appearing in parentheses are the same information for each of the eight-

subject groups randomly drawn from each cluster.

Insert Table 1 About Here

Table 2 summarizes the results of the X^2 tests comparing across interviews within each of the two clusters (C_1I_1 vs C_1I_2 and C_1I_1 vs C_2I_2). The nonsignificant X^2 values suggests interaction process stability or consistency in response patterning across interviews within each of the two cognitive complexity clusters.

Insert Table 2 About Here

Table 3 summarizes the results of the X^2 tests comparing across counselor cognitive complexity clusters. Despite a number of significant individual row comparisons, suggesting the possibility of differences in interaction process structure between the two clusters for the first interview (C_1I_1 vs C_2I_1), significant overall matrix (process) differences were not found between complexity clusters for that interview. For the second interview (C_1I_2 vs C_2I_2), however, significant process differences were found between clusters (X^2=108.227,81 df);and collapsed across both the first and second interviews within each of the complexity clusters ($C_1I_{1,2,}$ vs $C_2I_{1,2}$) significant interaction process differences were also found (X^2=151.418, 81 df).

Insert Table 3 About Here

DISCUSSION

Despite continued theorizing about identifiable "stages" in the counseling process, evidence for such stages--recognizable by shifts or changes in the pattern or type of counselor-client responding--was not

found in this study. Instead, within both clusters of counselors (i.e. regardless of a counselor's level of cognitive complexity), the interaction process patterns remained essentially consistant (stable) -- at least across the first two sequential interviews with a client. Whether such process stability would continue over longer sequences of interviews was not determined in this study; and it is a reasonable criticism of this study in terms of counseling "stage theory" that shifts in counselor-client response patterning would have appeared given longer sequences of counseling interviews, and that in fact failure to find interaction process differences across the two interviews is simply an indication of failure of the counseling to make transition into a "second stage" in the counseling process. Regardless, it is interesting to speculate on the origins of counseling stage theories in light of failure in this study to find interaction process differences across the initial two counseling interviews and given an approximate model of counseling interviews with any given client being between two and five (Dorken, 1977; Strossberg, Anchor, Cunninhgam, & Elkins, 1977). If process differences are not apparent across the first two counseling interviews, the variability in response patterning across the remaining interviews must be tremendous in order to accommodate the variety of proposed stages of counseling.

The results generally support the notion that differences in counselors' styles of processing and interpreting social/interpersonal information (i.e., differences in level of cognitive complexity) do make a difference in counselor-client interaction response patterns. While only approaching significance during the first interview, significant interaction process differences were evidenced by the second counseling encounter. Across the two-interview sequence, these counselor-client interaction

process differences were also sustained.

The process differences become most apparent when noting the specific interview interaction patterns generated by each of the two counselor cognitive complexity clusters. Table 4 and Table 5 are the transition matrices for the Cluster 1 and Cluster 2 counselors respectively, collapsed across their two interview sequences. Figure 1 and Figure 2 are transition graphs of the counselor-client interaction patterns based respectively on these two tables.

Insert Tables 4 and 5 About Here

Insert Figures 1 and 2 About Here

The transition lines for each of the graphs represent only primary transitions -- those transitions from each of the response categories which are most likely to occur (i.e. have the highest transition probability). In most instances these transitions are represented on the graphs as solid-line arrows; however, if two or more transitions from a given response category were equally probable, they were represented on the graph as a broken-line arrow.

For both clusters, the most likely consequent to any counselor response was a descriptive response by the client. The counselor, regardless of his/her level of cognitive complexity, provided a consistent or uniform social stimulus situation for the clients. Differences in the interaction patterns between the interviews conducted by the two clusters of counselors seemed determined primarily by the consequent responding to client responses. Specifically, the transition graphs show a somewhat greater degree of response variability following client antecedent responses

for the higher complexity counselors (Cluster 2) than for the lower complexity counselors (Cluster 1). This seems apparent given the two equally probable primary transitions following client analytic and prescriptive responses. It might also be noted that for the interviews conducted by the lower complexity counselors, the various categories of client responses were more often followed by client response of a different category, rather than by a counselor response. While it was true of the interviews conducted by the more complex counselors that prescriptive and non-moral preference responses were most generally followed by a second client response, unlike the Cluster 1 counselor interviews, consequents to client responses were most often counselor responses -- and these with a degree of variability greater than those characteristic of the Cluster 1 interviews.

Overall these results lend validity to the assumption that different cognitive styles on the part of the counselor do influence the character of the interaction generated during counseling. Generally, research to date has suggested that different patterns or styles of counselor-client interaction may prove more efficacious or therapeutic than others (Strupp & Bergin, 1969). Whether counselor level of cognitive complexity as a variable affecting interaction patterns influences therapeutic outcome remains to be determined.

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Table 1

Mean Scores and Standard Deviations on Five Cognitive Complexity Measures for Counselor Clusters

Measure	Low Complexity Cluster (C_1)		High Complexity Cluster (C_2)	
	M	SD	M	SD
Intolerance of Ambiguity (IA)	49.06 (49.75)	8.14 (6.81)	48.81 (46.75)	10.10 (12.47)
Interconcept Distance (ID)	5.36 (4.97)	1.39 (1.15)	7.75 (7.77)	1.41 (1.56)
Intolerance of Trait Inconsistency (ITI)	7.00 (7.12)	1.36 (1.45)	6.18 (6.12)	2.00 (2.10)
Category Width (CW)	34.37 (35.87)	6.37 (5.79)	42.06 (44.25)	6.72 (4.94)
Sentence Completion Test (SCT)	2.18 (2.12)	.38 (.43)	2.25 (2.16)	.42 (.50)

Table 2

Chi-square Tests for Interaction Process Stability Across Interviews within Complexity Clusters

Cluster 1 (C_1I_1 vs C_1I_2)			Cluster 2 (C_2I_1 vs C_2I_2)		
Matrix Row	X^2	df	Matrix Row	X^2	df
1	2.062	9	1	3.791	9
2	9.580	9	2	14.515	9
3	3.621	9	3	5.747	9
4	0.	9	4	2.880	9
5	8.161	9	5	2.785	9
6	6.102	9	6	14.289	9
7	6.812	9	7	5.750	9
8	2.222	9	8	4.424	9
9	8.417	9	9	4.954	9
10	5.871	9	10	4.659	9
Total	52.848	81	Total	63.794	81

*p<.05
**p<.01

Table 3

Chi-Square Tests for Interaction Process Differences Between Counselor Cognitive Complexity Clusters

Interview 1 (C_1I_1 vs C_2I_1)			Interview 2 (C_1I_2 vs C_2I_2)			Interviews 1 and 2 ($C_1I_{1,2}$ vs $C_2I_{1,2}$)		
Row	X^2	df	Row	X^2	df	Row	X^2	df
1	5.443	9	1	11.433	9	1	13.210	9
**2	25.978	9	*2	17.366	9	**2	37.390	9
3	3.974	9	3	6.574	9	3	6.751	9
4	0.	9	4	.444	9	4	.563	9
5	7.902	9	5	4.175	9	5	10.260	9
**6	22.864	9	**6	21.972	9	**6	34.960	9
7	11.385	9	7	13.045	9	*7	17.378	9
8	6.545	9	8	4.705	9	8	4.673	9
9	5.389	9	9	14.577	9	9	10.488	9
10	8.921	9	10	13.936	9	10	15.745	9
Total	98.401	81	*Total	108.227	81	**Total	151.418	81

*p <.05

**p <.01

Table 4

Transition Matrix of Response Frequencies and Transition Probabilities for Cluster 1 (Low Complexity)

Counselors Collapsed Across 1 and 2

		Counselor					Client				
		I	II	III	IV	V	I	II	III	IV	V
Counselor	Descriptive (I)	35	35	7	0	9	990	160	0	2	73
		.027	.027	.005	0	.007	.755	.122	0	.002	.056
	Analytic (II)	40	1	1	0	2	623	284	1	9	85
		.038	.001	.001	0	.002	.596	.272	.001	.009	.081
	Prescriptive (III)	5	5	0	0	3	16	7	0	0	3
		.128	.128	0	0	.077	.410	.179	0	0	.077
	Valuative (IV)	0	0	0	0	0	1	0	0	0	0
		0	0	0	0	0	1.000	0	0	0	0
	N-M Preference (V)	3	1	3	0	0	30	8	0	0	9
		.056	.019	.056	0	0	.556	.148	0	0	.167
Client	Descriptive (I)	871	633	20	0	27	7	298	4	8	213
		.419	.304	.010	0	.013	.003	.143	.002	.004	.102
	Analytic (II)	235	277	8	1	13	230	0	0	3	83
		.276	.326	.009	.001	.015	.271	0	0	.004	.098
	Prescriptive (III)	0	2	0	0	0	3	0	0	0	0
		0	.400	0	0	0	.600	0	0	0	0
	Valuative (IV)	3	4	0	0	0	9	2	0	0	5
		.130	.174	0	0	0	.391	.087	0	0	.217
	N-M Preference (V)	93	95	1	0	2	186	91	0	1	0
		.198	.203	.002	0	.004	.397	.194	0	.002	0

Table 5

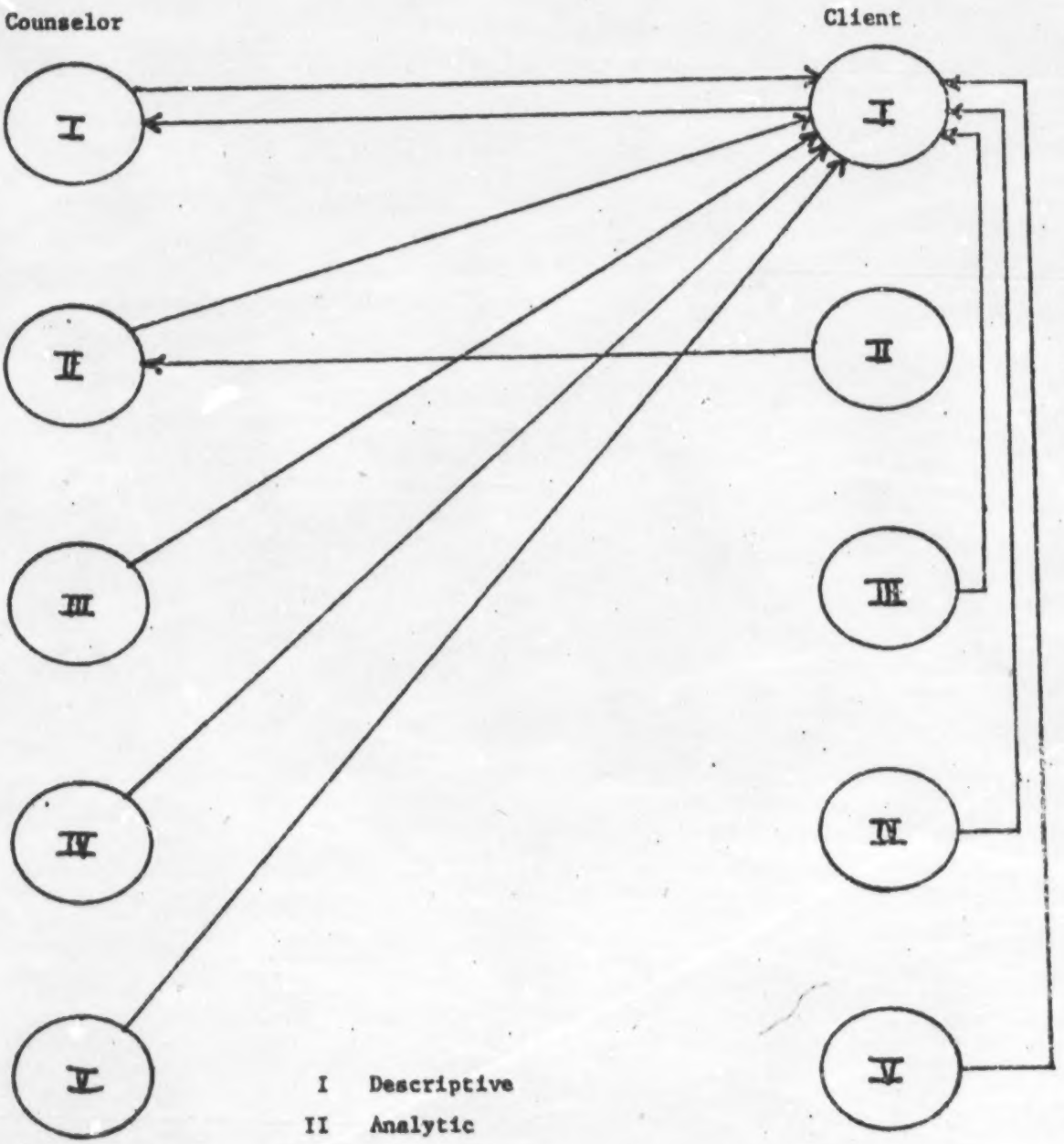
Transition Matrix of Response Frequencies and Transition Probabilities for Cluster 2 (High Complexity)

Counselors Collapsed Across Interviews 1 and 2

		Counselor					Client				
		I	II	III	IV	V	I	II	III	IV	V
Counselor	Descriptive (I)	40	64	11	0	15	1252	180	5	10	85
		.024	.039	.007	0	.009	.753	.108	.003	.006	.051
	Analytic (II)	58	14	13	1	13	737	279	7	7	125
		.046	.011	.010	.001	.010	.588	.222	.006	.006	.100
	Prescriptive (III)	7	11	1	0	1	48	10	2	0	8
		.084	.133	.012	0	.012	.518	.120	.024	0	.096
	Valuative (IV)	0	0	0	0	0	5	0	0	2	1
		0	0	0	0	0	.625	0	0	.250	.125
	N-M Preference (V)	12	12	1	0	0	46	16	0	0	25
		.107	.107	.009	0	0	.411	.143	0	0	.223
Client	Descriptive (I)	1101	750	38	4	56	27	288	11	19	233
		.436	.297	.015	.002	.022	.011	.090	.004	.008	.092
	Analytic (II)	260	259	7	0	20	233	1	10	4	105
		.292	.292	.008	0	.022	.251	.001	.011	.004	.118
	Prescriptive (III)	6	10	1	0	0	11	11	0	0	3
		.142	.238	.024	0	0	.262	.262	0	0	.071
	Valuative (IV)	18	8	0	1	1	10	3	0	0	2
		.419	.186	0	.023	.023	.236	.070	0	0	.047
	N-M Preference (V)	126	126	6	2	7	205	102	8	1	1
		.216	.216	.010	.003	.012	.351	.175	.014	.002	.002

Figure 1

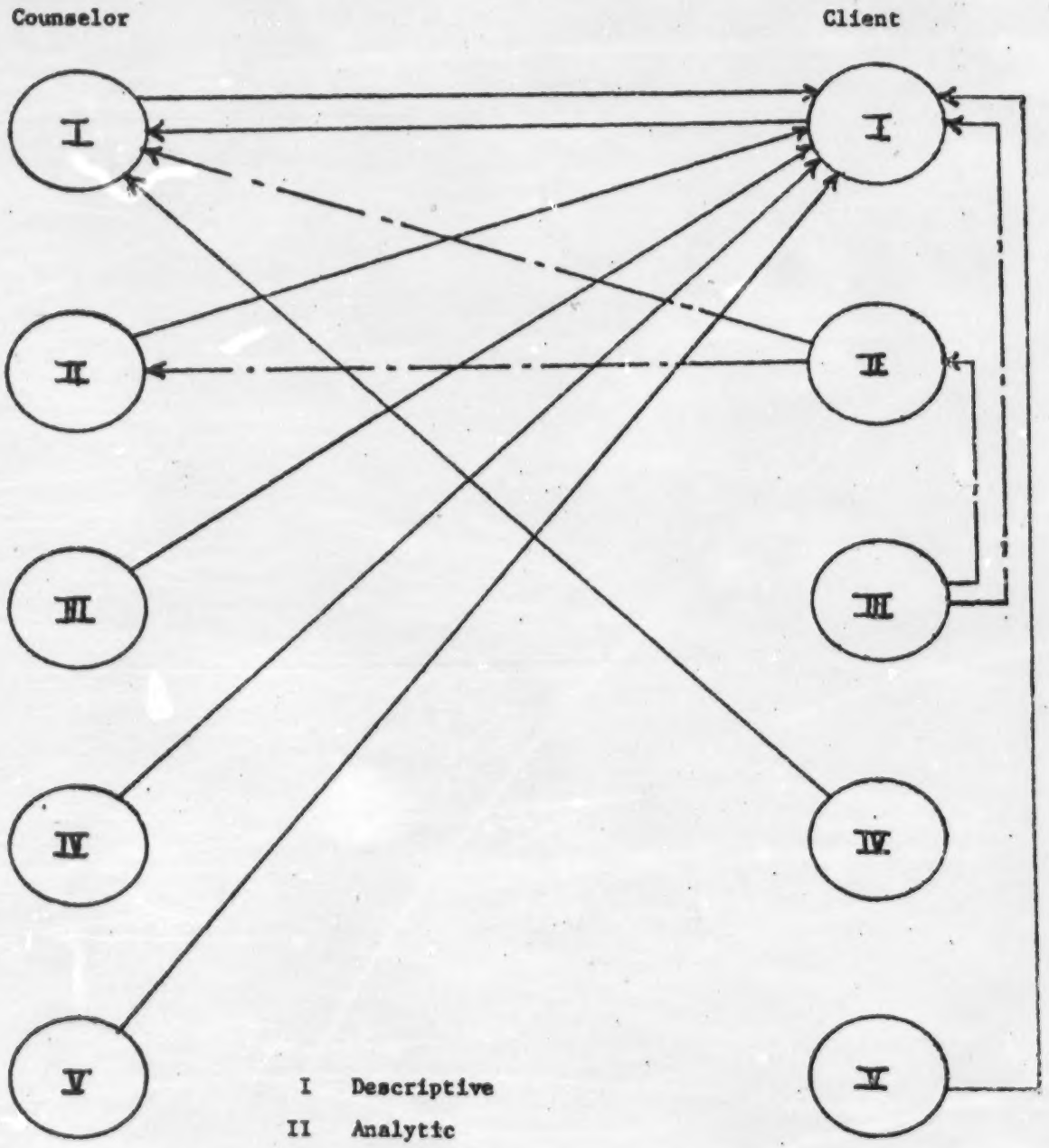
Transition Graph for Cluster 1 (Low Complexity) Counselors Collapsed Across Interviews 1 and 2



I Descriptive
II Analytic
III Prescriptive
IV Valuative
V Non-Moral Preference

Figure 2

Transition Graph for Cluster 2 (High Complexity) Counselors Collapsed Across Interviews 1 and 2



I Descriptive
II Analytic
III Prescriptive
IV Valuative
V Non-Moral Preference